B.Sc. DEGREE EXAMINATION,NOVEMBER 2018
III Year VI Semester
Core Elective - Paper I
ACTUARIAL STATISTICS

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. If 512(1 + i)^3 = 719.39, then find 'i'.
2. Define i) Principal ii) Interest iii) Amount
3. What is normal rate of interest?
4. What is Annuity
5. What is the probability of picking a card that was red or black from a pack of 52 cards?
6. Write the formula for present value.
7. Write the expression for pure endowment assurance
8. Define i) mutually exclusive events ii) Immediate annuity.
9. Write the limitations of classical definition of probability.
10. What is principal insurance
11. Give the formula of temporary assurance
12. What are the two types of annuity plan in net premiums

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Derive the formula for accumulated value or amount.
14. Find the value as at the end of 5 years of an annuity of Rs 400 per annum payable 12 years certain, the rate of interest being taken as 6%.
15. A sum of Rs. 2000 is invested at a rate of interest of 5% p.a. After 7 years, the rate of interest was changed to 5% p.a convertible half yearly. After further period of 3 yrs, the rate was again changed to 6% p.a convertible quarterly. What is the accumulated value at the end of 15 yrs from commencement?
16. Define varying rate of interest.
17. Derive the relation between $a_n\neg$ and$S_n\neg$.
18. Evaluate (1+i)^6 $a_7\neg$ @8%
19. Find the value of $a_n\neg$ @ 6%

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Find $5 \ / \ S_{n} \neg @ \ 6\%$
21. Show that $(1 \ + \ i \ )^{\ t} \ a_{n} \neg \ \ = \ \ \vee^{n \ -t} \ s_{n} \neg \ = \ \ s_{t} \neg \ + \ a_{n-t} \neg$
22. Derive the present value of a deferred annuity certain.
23. What is surplus? Explain briefly about sources of surplus.
24. Derive an expression for increasing temporary life annuity and temporary life annuity due.

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